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NAVIGATION TECHNOLOGIES CORPORATION
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EXAMINER

COLBERT, E

ART UNIT

PAPER NUMBER

2172

DATE MAILED:

07/31/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/016,002

Applicant
Lampert et al

Examiner
Ella Colbert

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on May 23, 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-10, 13-15, 17, 19, 20, and 23-29 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-10, 13-15, 17, 19, 20, and 23-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 12 20) ☐ Other:

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DETAILED ACTION

1. Claims 2-10, 13-15, 17, 19-20 and newly added claims 23-29 are presented for examination. Claims 1, 11, 12, 16, 18, 21, and 22 have been canceled and claims 2-5, 8-10, 13-15, 17, 19, and 20 have been amended in this communication filed 05/23/01, entered as amendment B, paper number 13.
2. Applicants' request for a CPA, filed on 03/16/01 has been entered as paper number 11.
3. Applicants' IDS filed on 03/16/01, entered as paper number 12, has been considered by the Examiner.
4. Applicants' notice of a change of address filed on 06/20/01 and 07/02/01 has been entered as paper numbers 14 and 15.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-10, 13-15, 17, 19, 20, and 23-29 rejected under 35 U.S.C. 103(a) as being unpatentable over (US 4,888,698) Driessen et al, hereafter Driessen.

With respect to claims 2, Driessen did not explicitly teach, the first index being a bitmap, but it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the first index to be a bitmap because a data structure in memory represents

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information in the form of a collection of individual bits. A bit map is used to represent a bit image such as a geographical map.

With respect to claim 3, the sub-areas being a sub-rectangle (col. 1, lines 44-53)

With respect to claim 4, the first index is stored internally of the parcel associated therewith (col. 2, lines 60-68 and col. 8, lines 65-68).

With respect to claim 5, the parcels storing a second index identifying boundaries of each of the plurality of sub-areas (col. 7, lines 65-68).

With respect to claim 6, Driessen did not explicitly teach, the second index is a kd-tree index, but it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a kd-tree index for the second index because using a kd-index is one way of ordering parcels by using a depth-first within each parcel type and layer. This provides an ordering similar to the Peano-key ordering taught in Driessen in col. 7, lines 62-68 and col. 8, lines 1-4.

With respect to claim 7, Driessen did not teach the second index is stored internally of the parcel, but it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a second index for storing the parcel internally because an index is well known to one of ordinary skill in the art at the time the invention was made to have the second index for storing a parcel because an index is a way of sorting and accessing data or files by creating an alphabetical list of keywords. An index speeds up the retrieval of data from storage.

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With respect to claim 8, the data entities represent geographic features encompassing each of the sub-areas that are approximately equal in number to the data entities representing geographic features encompassed by each of the other sub-areas (col. 8, lines 17-38 and col. 9, lines 17-42).

With respect to claim 9, the data entities represent segments of roads in the geographic region (col. 4, lines 35-42, col. 5, lines 29-33 and lines 51-55, and col. 6, lines 47-54).

With respect to claim 10, the step of dividing forms eight sub-areas (col. 9, lines 21-33).

With respect to claim 13, this dependent claim is rejected for the similar rationale given for claim 9.

With respect to claim 14, this dependent claim is rejected on grounds corresponding to the rejections given above for dependent claim 6. In dependent claim 14, Applicant claims a method which contains steps corresponding to the method of rejected dependent claim 6.

With respect to dependent claim 15, this claim is rejected on grounds corresponding to the rejections given above for dependent claim 2. In dependent claim 15, Applicant claims a method which contains steps corresponding to the method of rejected dependent claim 2.

With respect to claim 17, Driessen did not teach, a plurality of index tables of a second type associated with a respective one of the plurality of parcels wherein the index tables of the second type comprises: a reference to each of the plurality of separate sub-areas into which the area associated with the parcel is divided, but it would have been obvious to one of ordinary skill in the art at the time the invention was made to have index tables associated with a separate one

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of the parcels where each of the index tables of the second type comprises a reference to each of the plurality of separate sub-areas into which the area is associated with the parcel is divided because an index table is well known to one of ordinary skill in the art at the time the invention was made to have the index tables of a second type associated with separate plurality of parcels where each of the index tables of the second type comprises a reference to each of the plurality of separate sub-areas into which the area associated with the parcel is divided because index tables are a way of sorting and accessing data or files by creating an alphabetical list of keywords of the sub-areas associated with the divided parcel. An index speeds up the retrieval of data from storage.

With respect to claim 19, the sub-areas associated with each parcel are spatially organized (col. 6, lines 40-67 and col. 7, lines 1-29).

With respect to claim 20, the groupings of the data entities associated with each rectangular sub-area are approximately similar in number to each other (col. 8, lines 17-38).

With respect to claim 23, separating a plurality of data entities that represent the geographic features in a plurality of parcels (col. 4, lines 35-39), each parcel of the plurality of parcels contains a separate subset of the plurality of data entities (col. 1, lines 10-33), the subset of the plurality of data entities contained in each parcel represents the geographic features located in a separate one of a plurality of areas into which the geographic region is divided for each parcel of the plurality of parcels (col. 4, lines 25-34 and fig. 1), dividing the area associated into a plurality of sub-areas (col. 5, lines 15-33), storing a first index that identifies for each of the data

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entities contained in the parcel each of the sub-areas intersected by the geographic feature represented (col. 8, lines 13-44), and each sub-area in which a geographic feature is located can be determined by using the first index (col. 4, lines 36-39 and col. 5, lines 15-26). Driessen did not explicitly teach a first index, but it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a first index because indexes are used to speed up the retrieval of data or files and to access the files or data in a sorted order by creating an alphabetized list of keywords.

With respect to claim 24, accepting specification of a search area in a geographic region represented by the geographic database (col. 5, lines 44-56), identifying a parcel of data in the geographic database, wherein the parcel contains data entities that represent features encompassed within a first rectangular area located within the geographic region wherein the first rectangular area intersects the search area (col. 5, lines 43-67 and col. 6, lines 63-67). Driessen did not explicitly teach a first index associated with the parcel to identify which of a plurality of rectangular sub-areas into which the first rectangular area is divided intersect the search area, using a second index associated with the parcel to identify the data entities contained in the parcel that intersect each of the plurality of rectangular sub-areas identified as intersecting the search area, whereby the data entities that represent the geographic features located within the search area are determined, but it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a first and second index associated with the parcel to identify which of the plurality of rectangular sub-areas into the first rectangular area is divided to intersect

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the search area where the data entities represent the geographic features within the search area because indexes are used to speed up the retrieval of data or files and to access the files or data in a sorted order by creating an alphabetized list of keywords relating to the sub-areas that are identified in a search with the geographic features of the data entities..

With respect to claim 25, (a) identifying each parcel associated with a rectangular area that intersects the search area (col. 1, lines 40-62 and col. 3, lines 59-66), (b) for each parcel identified in step (a) using a first index associated with the parcel to identify each rectangular sub-area formed of the rectangular area ... (col. 3, lines 66-68 and col. 4, lines 1-10), (c) for each parcel identified in step (a) using a second index associated with the parcel to identify each of the data entities ... (col. 8, lines 18-39), whereby the data entities identified in step (c) represent geographic features located in the search area (col. 3, lines 59-68). Driessen did not explicitly teach a first index associated with the parcel to identify each rectangular sub-area ..., using a second index associated with the parcel to identify the data entities ... , but it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a first index associated with the parcel to identify the rectangular sub-area formed of the rectangular area ... and using a second index associated with the parcel to identify the data entities ... because indexes are used to speed up the retrieval of data or files and to access the files or data in a sorted order by creating an alphabetized list of keywords relating to the sub-areas that are identified in a search with the geographic features of the data entities.

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With respect to claim 26, each data record represents a physical geographic feature in a geographic region (col. 5, lines 16-21), the data records are separated into a plurality of parcels (col. 1, lines 40-62), each parcel contains a separate portion of the data records such that the portion of the data records contained in each parcel represents those geographic features ... (col. 2, lines 23-50 and col. 8, lines 27-42), wherein the improvement comprises: a plurality of index tables of a first type each associated with a separate one of the plurality of parcels ... comprises: a separate reference to each data record in the parcel to which the index table is associated (col. 7, lines 21-29 and col. 8, lines 52-65), a reference to at least one of a plurality of groupings of the plurality of data records in the parcel (col. 7, lines 40-66), wherein the plurality of groupings are based upon a division of the area associated with the parcel of smaller sub-areas (col. 9, lines 19-42). Driessen did not teach, a plurality of index tables of a first type associated with a respective one of the plurality of parcels wherein the index tables of the first type comprises: a separate reference to each data record in the parcel in which the index table is associated, but it would have been obvious to one of ordinary skill in the art at the time the invention was made to have index tables associated with a separate reference to each data record in the parcel in which the index table is associated because index tables are a way of sorting and accessing data or files by creating an alphabetical list of keywords of the sub-areas associated with the divided parcel. An index is known to speed up the retrieval of data from storage.

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With respect to claim 27, (a) data entities each of which represents a geographic feature in a geographic region (col. 5, lines 16-21), wherein the data entities are separated into a plurality of parcels (col. 1, lines 40-62), wherein each parcel contains a subset of the data entities (col. 5, lines 22-31), wherein the subset of data entities in each parcel represents those geographic features ... (col. 5, lines 31-33), (b) a plurality of indexes, each of which is associated with a separate one of the plurality of parcels and where the index relates each of the data entities in the subset of data entities ... (col. 1, lines 40-45, col. 2, lines 44-68, and col. 4, lines 1-10), and wherein the geographic database is stored on a computer readable storage medium (col. 5, lines 35-38). Driessen did not teach, the database is a geographic database but it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a geographic database because the geographic data in a geographical navigation system is usually stored on a geographical database. A database is a file composed of records with fields together with a set of operations for searching, sorting, recombining, and other functions.

With respect to dependent claim 28, this dependent claim is rejected for the similar reason given for rejected method claim 13.

With respect to claim 29, a plurality of parcels, each of which contains a separate portion of the data records, ... (col. 2, lines 23-50 and col. 8, lines 27-42), a plurality of first indexes each of which is associated with a plurality of parcels, ... (col. 8, lines 13-44), and the computer readable data structure means identifies which of the data records represent segments of roads located in any specified sub-area of any specified area (col. 4, lines 35-42, col. 5, lines 29-33 and

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lines 51-55, and col. 6, lines 47-54). Driessen did not explicitly teach, a plurality of second indexes each of which is associated with a plurality of parcels, ... , but it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a plurality of second indexes each of which is associated with a plurality of parcels, ... because indexes are a used to sort and access data or files by creating an alphabetical list of keywords of the sub-areas associated with the parcel. An index is known to speed up the retrieval of data from storage.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

DeLorme et al (US 5,802,492) taught a navigational system aided by a computer.

Inquiries

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ella Colbert whose telephone number is (703)308-7064. The examiner can normally be reached **Monday through Thursday from 6:30 a.m. to 5:00 p.m. EST.**

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Vu, can be reached on (703)305-4393.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

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Or faxed to:

(703)308-9051, (for formal communications intended for entry).

Or:

(703)308-5403 (for informal or draft communications, please label

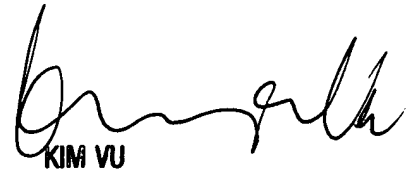
"PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, Virginia., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group Receptionist whose telephone number is (703)308-9600.



E. Colbert
July 28, 2001



KIM VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100